REMARKS

The Examiner has rejected Claims 1-3, 5-9, 12, 14-19, 21-25, 28, 30-35, 37-41, 44, 46-51, 53-57, 60, 62-67, 69-73, 76, 78-83, 85-89, 92, and 94-98 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In response, applicant asserts that the Examiner's rejections are avoided by virtue of the amendments made to at least a portion of the foregoing claims. In addition, applicant respectfully points out that Claims 7, 19, 23, 39, 51, 55, 71, 83 and 87 do not recite "said resource data," as the Examiner notes, and therefore the Examiner's rejection with respect to such claims is deemed inapplicable.

The Examiner has also rejected Claims 1-3, 5-9, 11-12, 14-19, 21-25, 27-28, and 30-32 under 35 U.S.C. 101 as being directed toward non-statutory subject matter. Applicant has clarified independent Claims 1 and 17 to include a computer program product "in a computer storage medium" in order to avoid such rejection, as suggested by the Examiner.

In addition, the Examiner has rejected Claims 1-3, 5, 9, 12, 14, 17-19, 21, 25, 28, 30, 33-35, 37, 41, 44, 46, 49-51, 53, 57, 60, 62, 65-67, 69, 73, 76, 78, 81-83, 85, 89, 92, 94, and 98 under 35 U.S.C. 103(a) as being unpatentable over Cozza (U.S. Patent No. 5,649,095) in view of Hypponen et al. (U.S. Patent No. 6,577,920). Applicant respectfully disagrees with such rejection, especially in view of the amendments made hereinabove to the independent claims. Specifically, applicant has amended the independent claims to at least substantially include the subject matter of former dependent Claim 97.

With respect to the independent claims, the Examiner has relied on the following excerpts from the Cozza and Hypponen references to make a prior art showing of applicant's claimed technique "wherein said generated fingerprint data includes a number of program resource items specified within said resource data of said packed computer

file" (as amended, see this or similar, but not necessarily identical language in the independent claims).

> "According to a second aspect of the present invention there is provided a method of screening a software file for viral infection, the method comprising:
> defining a first database of known macro virus signatures, a second database of known and certified commercial macro signatures, and a third database of known and certified local macro signatures;
> **scanning said file to determine whether or not the file contains a macro; and, if the file contains a macro**
> **determining a signature for the macro and screening that signature against the signatures contained in said databases;**
> and" (Hypponen, Col. 3, lines 14-25)

> "A third example involves the nature of multi-fork file storage on computers such as the Apple Macintosh. **Typically one fork of a file,** for example the resource fork on Macintosh computers, **may contain a kind of small database which is used to contain many kinds of data, including application code, icons, preferences, strings, templates, and other such items.** A change in size to such a fork may not indicate a change to application code, but rather a change to something else such as user preferences. It is therefore necessary to handle this complexity in a proper manner so as to optimize speed enhancement without compromising scan effectiveness." (Cozza, Col. 2, paragraph 7)

Applicant respectfully asserts that the excerpt from Hypponen relied upon by the Examiner merely discloses "scanning said file to determine whether or not the file contains a macro" and "determining a signature for the macro." In addition, the excerpt from Cozza simply discloses that "one fork of a file … may contain a kind of small database which is used to contain many kinds of data, including application code, icons, preferences, strings, templates, and other such items." However, scanning a file and determining the signature of a macro, coupled with a disclosure that a file may contain many kinds of data, simply fails to suggest a technique "wherein said generated fingerprint data includes a number of program resource items specified within said resource data of said packed computer file" (emphasis added), as claimed by applicant.

In addition, in the office action mailed 03/14/2006, the Examiner argued that "Hypponen taught that file signatures should be used to detect viruses (see Hypponen Col. 3 Lines 14-25) and Cozza disclosed the files containing resource items (i.e.

application code, icons, preferences, strings, templates) specified within resource data (i.e. resource fork) (See Cozza Col. 2 Paragraph 7)." Applicant respectfully asserts that Hypponen specifically discloses "determining a signature for the **macro** and screening that signature against the signatures contained in said databases" (emphasis added). Additionally, Cozza specifically discloses that the "resource fork … may contain a kind of small database which is used to contain many kinds of data, including application code, icons, preferences, strings, templates, and other such items." Clearly, determining a macro signature in a file, combined with the disclosure of a resource fork containing many kinds of data, fails to even suggest a technique "wherein said generated fingerprint data includes a number of program resource items specified within said resource data of said packed computer file" (emphasis added), as claimed by applicant.

In the Office Action mailed 09/01/2006, the Examiner responded to applicant's arguments and argued that "[a]lthough Hypponen does pertain to "macros," more generally, Hypponen pertains to comparison of two checksums for determining whether a set of data contains malicious data, and it would have been readily apparent to one of ordinary skill in the art at the time of invention that comparison between checksums would be faster than comparison of the entire set of data the checksums were derived from."

Applicant disagrees and respectfully asserts that "comparison of two checksums for determining whether a set of data contains malicious data," as noted by the Examiner, fails to even suggest "fingerprint data that includes a number of program resource items specified within said generated fingerprint data" (emphasis added), as applicant claims. Again, applicant respectfully asserts that Hypponen simply teaches that "[i]f one or more macros is identified in the file, a checksum signature is determined for the/or each identified macro" (see Col. 5, lines 29-31 – emphasis added). Hypponen further teaches that "[a]ssuming that a single macro is identified in the file, the macro virus controller…scans the first database…to determine whether or not the corresponding signature is present in that database" (see Col. 5, lines 32-35 - emphasis added).

Clearly, disclosing that a signature is determined if a macro is identified in a file, and then determining if the corresponding signature is present in a database, fails to suggest a technique "wherein said generated fingerprint data includes a number of program resource items specified within said resource data of said packed computer file" (emphasis added), as claimed by applicant.

Further, with respect to the independent claims, the Examiner has relied on Col. 3 from Cozza and Col. 3, lines 14-25 from Hypponen to make a prior art showing of applicant's claimed technique "wherein said generated fingerprint data includes a flag indicating which data is included within said generated fingerprint data" (as amended, see this or similar, but not necessarily identical language in the independent claims).

Applicant respectfully asserts that the excerpt from Cozza relied on by the Examiner merely discloses two sets of flags, for the first "set of flags the system utilizes a bit field large enough so that there is one bit corresponding to every known Macintosh virus" (Cozza, Col. 5, lines 29-32) and that the "second set of flags resides in the cache information" (Cozza, Col. 5, line 40). In addition, applicant notes that the second set of flags is used to indicate "that no virus was found previously in the last scan of the file" or "which virus was found first in the file." (Cozza, Col. 5, lines 42-47). Applicant also respectfully asserts that Hypponen teaches "determining a signature for the macro and screening that signature against the signatures contained in said databases" (emphasis added).

However, Cozza's disclosure of flags corresponding to every known virus and flags in the cache indicating previous scan results, when taken in combination with Hypponen's disclosure of determining macro signatures and checking them against signatures in a database, simply fails to suggest a technique "wherein said generated fingerprint data includes a flag indicating which data is included within said generated fingerprint data" (emphasis added), as claimed by applicant. There simply is no disclosure in the excerpts from Cozza or Hypponen of "fingerprint data [that] includes a flag," as claimed by applicant.

In addition, in the office action mailed 03/14/2006, the Examiner argued that "[c]olumn 3 of Cozza clearly indicated that a set of flags was used to indicate the result (which viruses were found in the file) of the scan." Further, the Examiner argued that "[i]n combination, the signature of the file is used to represent the file during comparison" and "[t]herefore, it is clear that in combination the flags represent which viruses were identified in the signature." However, applicant respectfully asserts that the disclosure of flags representing which viruses were identified in the signature fails to even suggest a technique "wherein said generated fingerprint data includes a flag indicating which data is included within said generated fingerprint data" (emphasis added), as claimed by applicant.

In the Office Action mailed 09/01/2006, the Examiner argues that "the [E]xaminer has previously addressed this argument and is again not persuaded." Again, applicant respectfully asserts that Cozza's disclosure of flags corresponding to every known virus and flags in the cache indicating previous scan results, when taken in combination with Hypponen's disclosure on determining macro signatures and checking them against signatures in a database, simply fails to suggest a technique "wherein said generated fingerprint data **includes** a flag indicating which data is included **within** said generated fingerprint data" (emphasis added), as claimed by applicant.

Still yet, with respect to the independent claims, the Examiner has relied on the following excerpt from the Cozza reference to make a prior art showing of applicant's claimed technique "wherein said generated fingerprint data includes a location within said resource data of said packed computer file of an entry specifying a program resource item having a largest size" (as amended, see this or similar, but not necessarily identical language in the independent claims).

> "...size when infecting. If a file's cache information is not marked as having been previously infected by some virus which changes a file's resource fork size, then **the file's current resource fork size is compared with the resource fork size stored in the file's cache information in step 66 to see if they are**

> **within some predetermined tolerance**. The tolerance in this step is determined based upon the size of viruses infecting a file's resource fork on the Apple Macintosh computer, upon the type of file being infected, and upon the typical size changes that might occur in Macintosh applications and other executable files due to minor changes by which the file might modify itself. This tolerance may vary from one file to another depending on file type and other factors. If these sizes are not within the predetermined tolerance, then flags are set for all viruses that might cause this file's resource fork to change size when infecting it in step 68." (Cozza, Col. 6, lines 29-45 - emphasis added)

Applicant asserts that the excerpt from Cozza relied upon by the Examiner merely discloses comparing "the file's current resource fork size ... with the resource fork size stored in the file's cache information in step 66 to see if they are within some predetermined tolerance" (emphasis added). Clearly, checking a current or stored resource fork size simply fails to even suggest a technique "wherein said generated fingerprint data includes a location within said resource data of said packed computer file of an entry specifying a program resource item having a largest size" (emphasis added), as claimed by applicant. The excerpt from Cozza simply fails to disclose "a program resource item having a largest size," as claimed by applicant.

In the Office Action mailed 09/01/2006, the Examiner argues that "[i]t was obvious that in the combination, a program resource having a largest size was included in the fingerprint, as resources were included and it was inherent that one of the included resources was the largest of the included resources."

In response, applicant respectfully disagrees and asserts that the fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993); *In re Oelrich*, 666 F.2d 578, 581-82, 212 USPQ 323, 326 (CCPA 1981). "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a

certain thing may result from a given set of circumstances is not sufficient.'" *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999).

Further, applicant respectfully asserts that even if "a program resource having a largest size was included in the fingerprint," as alleged by the Examiner, such does not even suggest any sort of location, let alone applicant's claimed "generated fingerprint data [that] includes a location within said resource data of said packed computer file of an entry specifying a program resource item having a largest size" (emphasis added), as claimed.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck*,947 F.2d 488, 20 USPQ2d 1438 (Fed.Cir.1991).

Applicant respectfully asserts that at least the third element of the *prima facie* case of obviousness has not been met, since the prior art references, when combined, fail to teach or suggest all of the claim limitations, as noted above. Nevertheless, despite such paramount deficiencies and in the spirit of expediting the prosecution of the present application, applicant has incorporated the subject matter of former Claim 97 into the independent claims.

With respect to the subject matter of former Claim 97 (now at least substantially incorporated into the independent claims), as rejected under 35 U.S.C. 103(a) as being unpatentable over Cozza, in view of Hypponen, in further view of Pietrek ("Peering Inside the PE: A Tour of Win 32 Portable Executable"), the Examiner has relied on the

rejection of Claim 1, as well as, Figure 5 and Table 13 from Pietrek to make a prior art showing of applicant's claimed technique "wherein said generated fingerprint data includes a checksum value calculated in dependence upon: a number of program resource items specified beneath each node within hierarchically arranged resource data of said packed computer file; string names associated with program resource items within said resource data of said packed computer file; and sizes of program resource items within said resource data of said packed computer file."

Applicant respectfully asserts that the Examiner's rejection of Claim 1 does not specifically address applicant's claimed limitations. In addition, applicant respectfully asserts that the only checksum relied on by the Examiner with respect to Claim 1 relates to a checksum of a macro, which clearly does not even suggest "a checksum value calculated in dependence upon: a number of program resource items specified beneath each node within hierarchically arranged resource data of said packed computer file; string names associated with program resource items within said resource data of said packed computer file; and sizes of program resource items within said resource data of said packed computer file," as applicant claims.

Furthermore, applicant respectfully asserts that Figure 5 and Table 13 from Pietrek merely show a resource directory hierarchy example and the resources hierarchy for CLOCK.EXE. However, the table and figure relied upon by the Examiner in no way suggest "fingerprint data [that] includes a checksum value calculated in dependence upon: a number of program resource items specified beneath each node within hierarchically arranged resource data of said packed computer file; string names associated with program resource items within said resource data of said packed computer file; and sizes of program resource items within said resource data of said packed computer file" (emphasis added), as claimed by applicant.

Again, applicant respectfully asserts that at least the third element of the *prima facie* case of obviousness has not been met, since the prior art references, when combined, fail to teach or suggest all of the claim limitations, as noted above. Thus, a

notice of allowance or specific prior art showing of each of the foregoing claim elements, in combination with the remaining claimed features, is respectfully requested.

Applicant further notes that the prior art is also deficient with respect to the dependent claims. For example, with respect to Claim 3 et al., the Examiner has relied on the following excerpt from the Cozza reference to make a prior art showing of applicant's claimed technique "wherein said resource data of said packed computer file comparing logic is operable to compare said resource data with characteristics of a plurality of known computer programs to detect if said packed computer program contains one of said plurality of known computer programs" (as amended, see this or similar, but not necessarily identical language in the independent claims).

> "...resource map, and the size of the viruses that can infect a Macintosh resource fork. **If it is then necessary to scan the resource fork for resource fork viruses**, this is done in step 90. However, **scanning is only required those viruses which infect resource forks and for which flags have been set in the steps above.**" (Cozza, Col. 7, lines 35-40 – emphasis added)

Applicant respectfully asserts that the excerpt from Cozza relied upon by the Examiner merely teaches that "[i]f it is then necessary to scan the resource fork for resource fork viruses," then "scanning is only required those viruses which infect resource forks and for which flags have been set." However, Cozza's disclosure to scan the resource fork for only those viruses which infect resource forks fails to even suggest a technique "wherein said resource data comparing logic is operable to compare said **resource data** of said packed computer file with characteristics of a plurality of known computer programs to detect if said packed computer program contains one of said plurality of known computer programs" (emphasis added), as claimed by applicant.

In the Office Action mailed 09/01/2006, the Examiner argues that "[t]he scanning of the resource fork for resource fork viruses does fall within the scope of claim recitation as in order to scan one set of data for second set of data, the characteristics of the second set must be compared with the first." Applicant respectfully disagrees and asserts that Cozza's disclosure to scan the resource fork for **only those viruses which infect**

**resource forks** fails to even suggest a technique "wherein said resource data comparing logic is operable to compare said **resource data** of said packed computer file with characteristics of a plurality of known computer programs to detect if said **packed computer program** contains one of said plurality of known computer programs" (emphasis added), as claimed by applicant.

Moreover, with respect to Claim 14 et al., the Examiner has relied on the following excerpt from the Hypponen reference to make a prior art showing of applicant's claimed technique "wherein said checksum value is rotated between each item being added into said checksum."

> "For the purposes of this example, **the signature used is a checksum derived using a suitable checksum calculation algorithm, such as the US Department of Defence Secure Hash Algorithm (SHA)** or the older CRC 32 algorithm." (Hypponen, Col. 4, lines 56-59 - emphasis added)

Applicant asserts that the excerpt from Hypponen relied upon by the Examiner merely teaches that "the signature used is a checksum derived using a suitable checksum calculation algorithm, such as … SHA." However, applicant respectfully asserts that the SHA algorithm rotates intermediate values used in the calculation of the SHA checksum which simply fails to meet a technique "wherein said checksum value is rotated **between each item** being added into said checksum" (emphasis added), as claimed by applicant.

In the Office Action mailed 09/01/2006, the Examiner argues that "[i]f the checksum is rotated after each operation, as is SHA, then it stands that 'between each item' the checksum was rotated." Applicant respectfully disagrees and asserts that simply rotating between operations, as the Examiner notes, does not meet applicant's claimed "checksum value is rotated **between each item being added into said checksum**" (emphasis added).

In addition, with respect to Claim 12 et al., the Examiner has rejected the same under 35 U.S.C. 103(a) as being unpatentable over Cozza in view of Hypponen, in further

view of Hodges et al. (U.S. Patent No. 6,269,456). Specifically, the Examiner has relied on the following excerpts from the Hodges reference to make a prior art showing of applicant's claimed technique "wherein said generated fingerprint data includes timestamp data indicative of a time of compilation of said known computer program" (as amended).

> "Generally speaking, a recent trend is for **manufacturers of antivirus applications to update their virus signature files VIRUS_SIGNATURES.DAT as new viruses are discovered and as cures for these viruses are developed**, and to make these updated signature files available to users on a periodic basis (e.g. monthly, quarterly, etc.). For example, an antivirus program manufacturer may post the update file VIRUS_SIGNATURES.DAT on a bulletin board system, on an FTP (File Transfer Protocol) site, or on a World Wide Web site for downloading by users." (Hodges, Col. 2, paragraph 6 - emphasis added)

> "These and other objects are achieved by a method and system for updating local client computers with antivirus software updates from a central antivirus server, the local client computers and the central antivirus server being coupled by a packet-switched network, wherein the antivirus software updates are transferred from the central antivirus server to a given local client computer using a push technology method. The central antivirus server comprises a first database containing information related to the latest antivirus software updates contained on each local client computer, and uses **push technology to transmit updated antivirus files if the local client computer's antivirus files are out of date.**" (Hodges, Col. 4, paragraph 6 - emphasis added)

Applicant respectfully asserts that the excerpts from Hodges relied upon by the Examiner merely teach that "manufacturers of antivirus applications ... update their virus signature files VIRUS_SIGNATURES.DAT as new viruses are discovered and as cures for these viruses are developed." In addition, Hodges teaches using "push technology to transmit updated antivirus files if the local client computer's antivirus files are out of date." However, the disclosure of updating antivirus signature files simply fails to even suggest a technique "wherein said generated fingerprint data includes timestamp data indicative of a time of compilation of said known computer program" (emphasis added), as claimed by applicant. There simply is no mention in the excerpts from Hodges anything regarding the use of "time of compilation of said known computer program" in the generated fingerprint data, as claimed by applicant.

In the Office Action mailed 09/01/2006, the Examiner argues that "Hodges teaches that the time that the signature (fingerprint) data was compiled should be included with the signatures and as such this timestamp indicates the time of compilation of the viruses (known computer program) into the DAT files, which meets the limitation of the claim language." Applicant respectfully disagrees and asserts that the excerpts relied upon by the Examiner merely teach that "a recent trend is for manufacturers of antivirus applications to **update their virus signature files** VIRUS_SIGNATURES.DAT **as new viruses are discovered** and as cures for these viruses are developed, and to make **these updated signature files available to users** on a periodic basis" (emphasis added). However, the excerpts relied upon by the Examiner in no way suggest a technique "wherein said generated fingerprint data includes timestamp data indicative of a time of compilation of said known computer program" (emphasis added), as claimed by applicant. Clearly the mere disclosure that "the time that the signature (fingerprint) data was compiled should be included with the signatures," as noted by the Examiner, does not even suggest "timestamp data indicative of a time of compilation of said known computer program" (emphasis added), as claimed by applicant.

Again, applicant respectfully asserts that at least the third element of the *prima facie* case of obviousness has not been met, since the prior art references, when combined, fail to teach or suggest all of the claim limitations, as noted above. Thus, a notice of allowance or specific prior art showing of each of the foregoing claim elements, in combination with the remaining claimed features, is respectfully requested.

Thus, all of the independent claims are deemed allowable. Moreover, the remaining dependent claims are further deemed allowable, in view of their dependence on such independent claims.

In the event a telephone conversation would expedite the prosecution of this application, the Examiner may reach the undersigned at (408) 505-5100. The

Commissioner is authorized to charge any additional fees or credit any overpayment to Deposit Account No. 50-1351 (Order No. NA11P467/00.177.01).

Respectfully submitted,
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